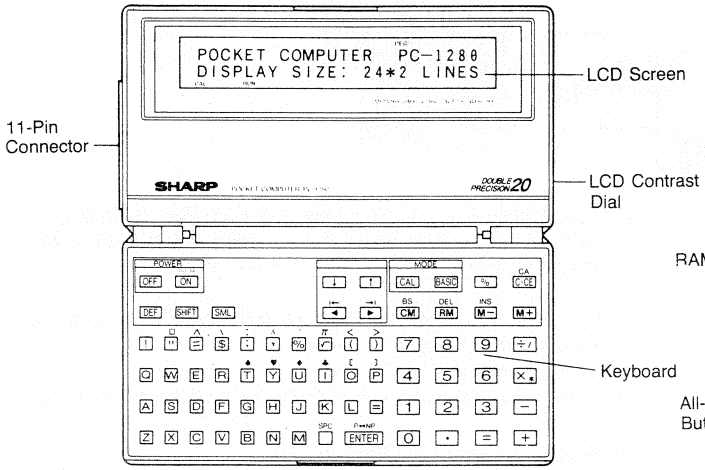
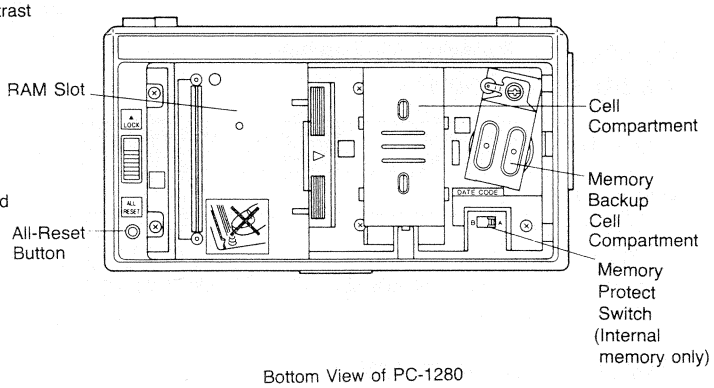
SHARP SERVICE MANUAL

CODE: 00ZPC1280SM/E

POCKET COMPUTER
MODEL PC-1280



Top View of PC-1280



Bottom View of PC-1280

1. INTRODUCTION

PC-1280 was designed to close with a tight fit to protect its LCD screen and keyboard, and has the facility for double-precision calculations.

2. Specifications

Model:
PC-1280 Pocket Computer

Processor:
8-bit CMOS CPU

Programming Language:
BASIC

System ROM:
136K Bytes

Memory Capacity:
System internal ..... 1.6K Bytes Approx.
Data area ..... 208 Bytes
Program/Data Area ..... 6558 Bytes
Reserve Area ..... 144 Bytes
(Memory expandable to 40KB using RAM cards)

Stack:
Sub-routine: 10 stacks
Function: 16 stacks
FOR-NEXT: 5 stacks
Data: 8 stacks

Operators:
Addition, subtraction, multiplication, division, trigonometric, and inverse trigonometric functions, logarithmic and exponential functions, angle conversion, square and square root, sign, absolute, integer, relational operators, logical operators etc.

Numeric Precision:
10 digits (single-precision mode) / 20 digits (double-precision mode) (mantissa) + 2 digits (exponent).

Editing Features:
Cursor left and right, line up and down, character insert, character delete.

Memory Protection:
CMOS Battery backup.

Interface Capability:
11 pin (For cassette interface, disk, printer, etc.)

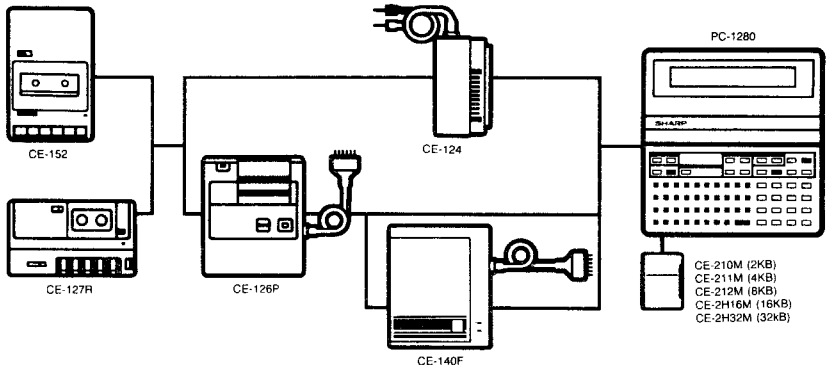
Ram Card Slot:
Cards of 2KB, 4KB, 8KB, 16KB, or 32KB.

Display:
2-line 24-digit liquid crystal display with 5×7 dot characters.

Keys:
72 keys. Alphabetic, numeric, special symbols, and functions. Numeric pad. User defined keys.

Power Supply:
6.0V DC: Lithium cells.
type: CR-2032×2
Backup Battery:
Built-in memory backup cell.
type: CR-2032
Power Consumption:
6.0V DC @ 0.03W
Approximately 120 hours of continuous operation under normal conditions (based on 10 minutes of operation or program execution and 50 minutes of display per hour at a temperature of 20°C). The time may vary slightly depending on usage and the type of battery used.
Operating Temperature:
0°~40°C (32°~140°F)

Dimensions:
135(W)×70.5(D)×19.2(H)mm (closed)
5.31(W)×2.76(D)×0.76(H) inches
135(W)×141(D)×9.6(H) mm (open)
5.31(W)×5.55(D)×0.38(H) inches
Weight:
Approximately 180g (0.4 lbs.) (with cells)
Accessories:
Lithium cells (built in) and operation manual.
Options:
Plug-in RAM cards 2KB (CE-210M), 4KB (CE-211M), 8KB (CE-212M), 16KB (CE-2H16M), 32KB (CE-2H32M)
Cassette Tape Recorder (CE-152)
Printer/Cassette Interface (CE-126P)
Pocket Disk Drive (CE-140F).



3. Operating Battery Life and Consumption Power

PC-1280 battery	Lithium battery: CR-2032×2pcs	Capacity: 170mAH	Terminal voltage: 6.0V

Consumption current

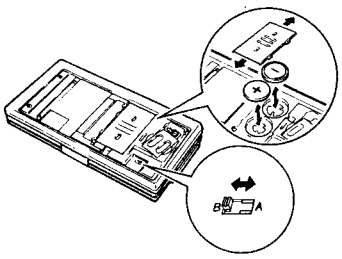
PC-1280 When OFF:	45μA, max.
PC-1280 When ON:	400μA, max.

The above is at the room temperature of 20°C and may vary depending on conditions.

4. Battery Replacement

Replacing the operating cells

1. Turn the power OFF.
2. Close the computer and turn it over. Follow the diagrams on the slot cover to remove the cover.
3. Remove the RAM card if present.
4. Slide the Memory Protect Switch to position B.
   THIS IS IMPORTANT and must be done before removing the operating cells or data and programs in memory will be lost.



Replacing Operating Cells

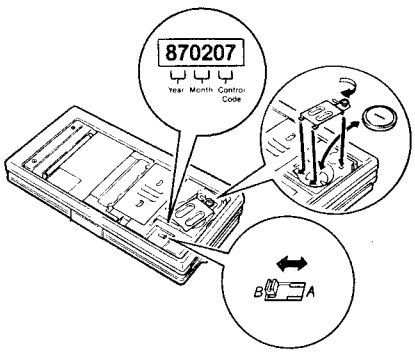
5. Press the tab (1) and slide open the cell-compartment cover (2). Remove the two lithium cells (3).
6. Replace the two cells, taking care that they are inserted with the correct polarity, as shown in the diagram.
7. Replace the cell compartment cover (4).
8. Press the ALL RESET button.
   THIS IS IMPORTANT AND MUST BE DONE TO PRESERVE PROGRAMS AND DATA.
9. Replace the slot cover and slide the switch to the Lock position.
10. Open the computer, switch on the power and look at the display. If it looks like the following with an * displayed, Press the ALL RESET button.

```
                              *
```

11. Turn OFF the power, remove the slot cover, and slide the Memory Protect Switch to position A.
12. Replace the RAM card, if used.
13. Replace the slot cover and slide the switch back to the LOCK position.

Replacing memory backup cell

The memory backup cell in your PC-1280 has an effective life of about five years under normal operating conditions. Note that temperature extremes can shorten cell life and cause memory losses. When the memory backup cell was installed at the factory, a label was attached above the memory protect switch, showing the date of installation and a control code.

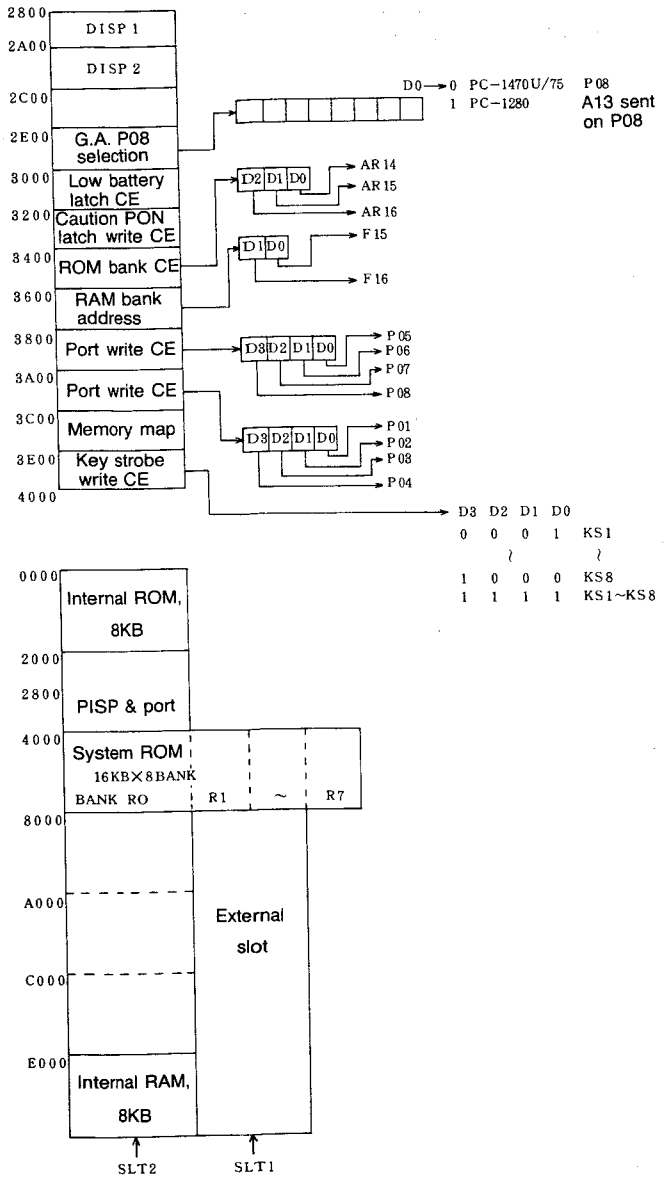


Replacing Memory Backup Cell

DO NOT REPLACE THE MEMORY BACKUP CELL WHEN OPERATING CELLS ARE REMOVED OR WEAK (BATT DISPLAYED WITH POWER ON): MEMORY CONTENTS WILL BE LOST.

1. Turn OFF the power, close the computer and turn it over.
2. Remove the slot cover and RAM card if present.
3. Slide the Memory Protect Switch to position B.
4. Release the screw (1) retaining the cover of the Backup Cell compartment and remove the cover (2).
5. Replace the cell (3), making sure that the new cell is inserted with the correct polarity (positive pole down).
6. Slide the Memory Protect Switch back to position A.
7. Replace the slot cover.

5. Memory Map



6. Low Battery Detect Circuit

Discussed next is about the low battery detect circuit which is incorporated in the PC-1280.

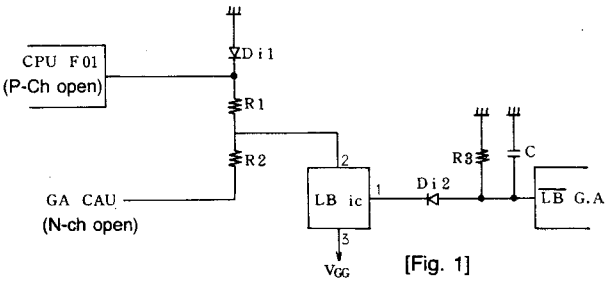
As shown in the figure BELOW, when the input voltage VIN goes above the detect voltage level VD, its output turns to high level. On the contrary, when VIN goes below VD, the output turns to low level.

Two levels of caution and stop are detected by a single IC (LB iC = MN1280).

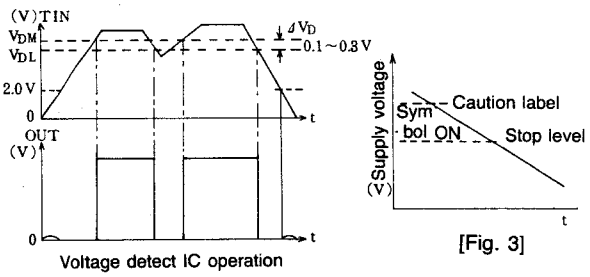
The input voltage added to the input pin (No.2) is divided by R1 and R2, and R2 is turned on/off by the CAU signal of G.A. As shown in Fig.3, when the supply voltage drops below the caution level, the BATT symbol comes to activate. When it further drops down below the stop level, the symbol goes out.

To sense the caution level, the CAU line of the G.A. is set active (low) and the state on $\overline{LB}$ of the G.A. is checked. If $\overline{LB}$ is at a low, the symbol activates. When the caution label is sensed, the CAU line is set off (high impedance). With this, the voltage increases on the LB iC pin 2 because there is no more voltage division by resistors, so that the output changes from low to high level. As the $\overline{LB}$ line of the G.A. is sensed again, the stop level is detected.

During standby, F01 of the CPU and CAU of the G.A. are set at high impedance and Di1 is inserted to correct the battery drop during standby and operation. The ON/BRK and RESET switch became inoperative after the stop level has been detected.



[Fig. 1]



[Fig. 2]

[Fig. 3]

Memory mapping according to RAM card combination.

2 K	4 K	8 K	16 K	32 K
D800 E000 SLOT 1 Internal RAM FFFF	D000 SLOT 1 Internal RAM FFFF	C000 SLOT 1 Internal RAM FFFF	A000 SLOT 1 Internal RAM FFFF	8000 Internal RAM 9FFF SLOT 1 FFFF
D800~FFFF 10K	D000~FFFF 12K	C000~FFFF 16K	A000~FFFF 24K	8000~FFFF 8000~9FFF 40K

7. LSI Description

7-1. CPU (SC61860A38) signal description

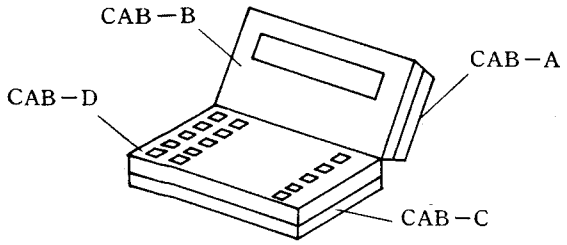
Pin No	Signal name	In/Out	Description (Standby = power off)
1	AO1	Out	Address bus A0, high during standby
2	R/W	Out	Write clock, normally high
3	øAL	Out	Address latch. Clock used to latch the address of the LCD driver.
4	TES	In	Test pin, normally low.
5	ø1	In	Oscillator input
6	ø0	Out	Oscillator output
7	RES	In	Reset input, reset with a high state of signal.
8	XIN	In	Cassette signal input
9	XON	In	ON/BRK key input, normally pulled down to low level.
10	XOUT	Out	Cassette signal and buzzer signal output
11	DIS	Out	LCD driver control signal, high during displaying.
12	HA	Out	LCD driver sync clock
13	IA8	In/Out	Key input/key strobe
≀	≀	≀	≀
20	IA1	In/Out	Key input/key strobe, low during standby.
21	IB8	–	Not used.
22	IB7	–	Not used.
23	IB6	–	Not used.
24	IB5	In	11-pin ACK (acknowledge on 11-pin interface)
25	IB4	In	11-pin DIN (data input on 11-pin interface)
26	IB3	In	11-pin DOUT (data output on 11-pin interface)
27	IB2	In	11-pin IO2 (data input on 11-pin interface)
28	IB1	In	11-pin IO1 (data input on 11-pin interface)
29	VM	In	LCD drive power
30	VA	In	LCD drive power
31	GND	In	(+) supply
32	H1	Out	LCD backplate signal, 4-level pulse during displaying (1/14 duty)
≀	≀	≀	≀
45	H14	Out	LCD backplate signal, 4 level pulse during displaying (1/14 duty)
46·47	H15·H16	–	Not used (because of 1/14 duty)
48	VB	In	LCD drive power, high during standby
49	VDIS	In	LCD drive power, high during standby
50	VCC	In	LCD drive power, high during standby
51	VDC	Out	LCD drive power, high during standby
52	VGG	In	(−) supply
53	O8	In/Out	Data bus, D7, normally high impedance
≀	≀	≀	≀
60	O1	In/Out	Data bus, D0, normally high impedance
61	FO5	Out	Gate array chip enable (CE)
62	FO4	Out	ROM chip enable
63	FO3	Out	RAM card bank select ($\overline{BA}$)
64	FO2	–	Not used.
65	FO1	Out	Low battery detect, high impedance during standby.
66	BO8	Out	Address bus A15, high during standby.
≀	≀	≀	≀
73	BO1	Out	≀
74	AO8	Out	≀
≀	≀	≀	≀
80	AO2	Out	Address bus A1, high during standby.

7-2. Gate array (LZ92K38) signal description

Pin No	Signal name	In/Out	Description
1	$\overline{BA}$	In	Bank select
2	CE	In	Chip enable
3	DO0	In	Data bus
≀	≀	≀	≀
6	DO3	In	Data bus
7	GND	In	(−) supply
8	PO1	Out	11-pin IO1 (P-channel open output)
9	PO2	Out	11-pin IO2 (P-channel open output)
10	PO3	Out	11-pin DOUT (P-channel open output)
11	PO4	Out	11-pin DIN (P-channel open output)
12	PO5	Out	11-pin BUSY (P-channel open output)
13	NC	−	Not used.
14	SLTB	Out	Not used.
15	AS3B	Out	Not used.
16	AS1	Out	System ROM 14 and RAM A11
17	AS2	Out	System ROM 15 and RAM A12
18	AS3	Out	System ROM 16 and RAM A13
19	AF15	Out	RAM card slot A15
20	AF16	Out	RAM card A16
21	SLT1	Out	RAM card slot chip enable
22	SLT2	Out	Internal RAM chip enable
23	DSP1	Out	DISPCHIP1 chip enable
24	DSP2	Out	DISPCHIP2 chip enable
25	RESO	Out	Reset output to CPU RESET line, normally low.
26	KON	Out	ON/BRK output to CPU KON line, normally low.
27	LB	In	Low battery detect, low at battery low.
28	RESI	In	Reset input, normally pulled down.
29	BRK	In	ON/BRK key input, normally pulled down.
30	VDD	In	(+) supply
31	GND	In	(−) supply
32	$\overline{CAU}$	Out	Low battery symbol activating voltage detect line, high impedance after the activation of the symbol.
33	KS1	Out	Key strobe (P-channel open output)
≀	≀	≀	≀
40	KS8	Out	Key strobe (P-channel open output)
41	R/W	In	Write clock
42	A9	In	Address bus
≀	≀	≀	≀
48	A15	In	Address bus

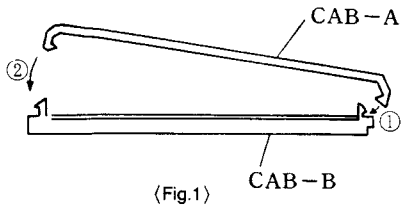
8. Service Precautions

Each cabinet is called as follows:
Display side bottom cabinet: CAB-A
Display side top cabinet: CAB-B
keyboard side bottom cabinet: CAB-C
Keyboard side top cabinet: CAB-D

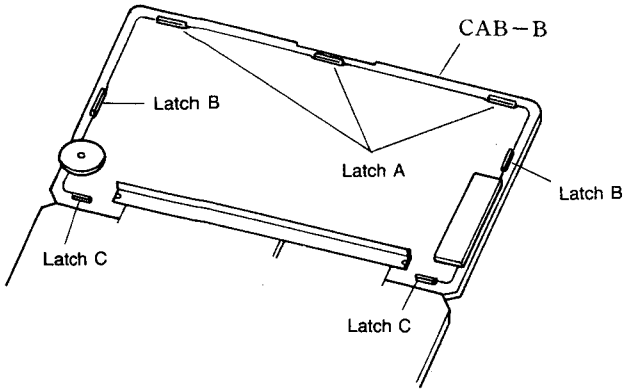


8-1. Removal and installation of CAB-A

Procedure to mate CAB-A to CAB-B.



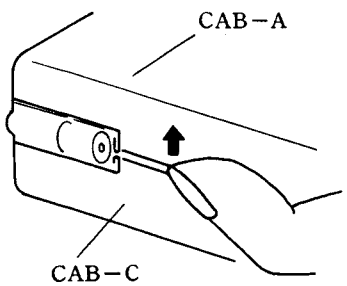
〈Fig.1〉



〈Fig.2〉

1. Engage the latch A shown in Fig.2 in a manner as shown with ① in Fig.1.
2. Engage the latch B shown in Fig.2.
3. Engage the latch C shown in Fig.2 in a manner as shown with ② in Fig.1.

Procedure to remove CAB-A

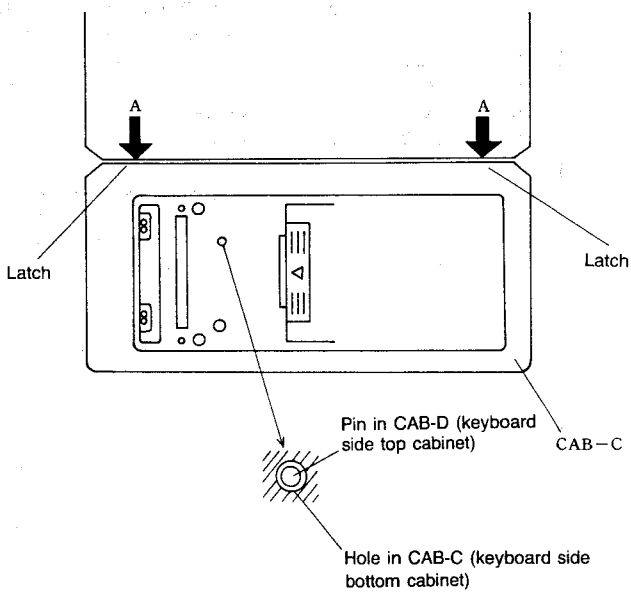


1. As shown in the figure, insert your nail in a clearance between CAB-A and CAB-C and push it in the arrow direction to disengage the latch C (Fig.2) at two locations. CAB-C must be disengaged first to achieve easier removal.
2. Do the reverse sequence of the above to assemble.

NOTE: When removing CAB-A, be careful not to separate the static tape.

8-2. Installation of CAB-C

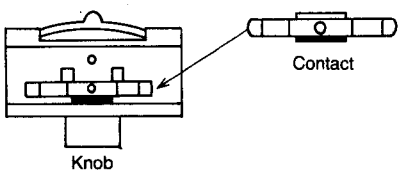
* Make sure that the pin is properly engaged into the hole.
* When mating CAB-C to CAB-D, push CAB-C all the way in the arrowhead A to achieve firm engagement. Tighten the screw with the unit placed on the special table.



*The pin must be properly and firmly engaged into the hole.

8-3. Installation of the contact to the LOCK switch knob

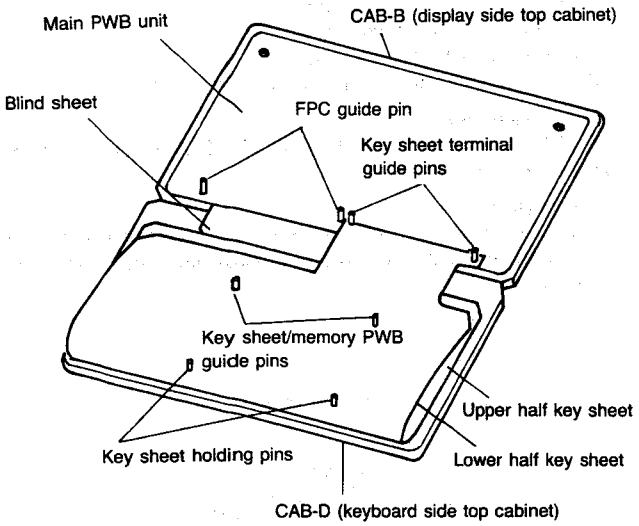
* Two contacts may be attached to the knob, but it has to be installed on the location shown in the figure. After installing the contact, it has to be caulked to fix it secure.



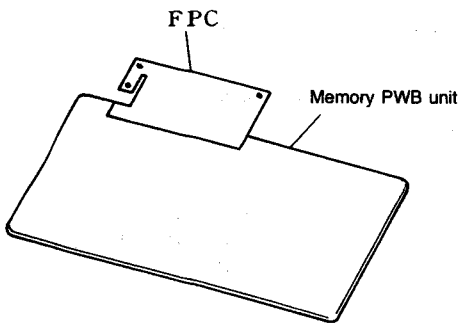
8-4. Installation of PWB, keysheet, etc.

① Assemble the blind sheet and the main PWB unit onto CAB-B.
② Insert rubber keys in CAB-D, then insert upper half of the key sheet. Match the guide pins and key sheet holding pins in their positions.
③ Match the key spacer with the guide pin and insert.
④ Fold back the lower half of the key sheet and insert only the terminal onto the guide pin.

NOTE: Leave the lower side key sheet uninserted onto CAB-D guide pin and holding pin and the folded area loose (Fig.1).


Main PWB unit
CAB-B (display side top cabinet)
Blind sheet
FPC guide pin
Key sheet terminal guide pins
Key sheet/memory PWB guide pins
Upper half key sheet
Key sheet holding pins
Lower half key sheet
CAB-D (keyboard side top cabinet)

(Fig.1)



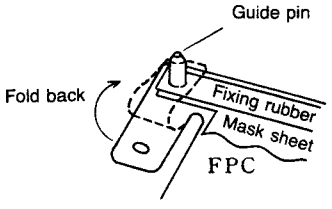
(Fig.2)

⑤ Mount the memory PWB unit in Fig.2 and insert only the FPC terminal onto the CAB-B guide pin.

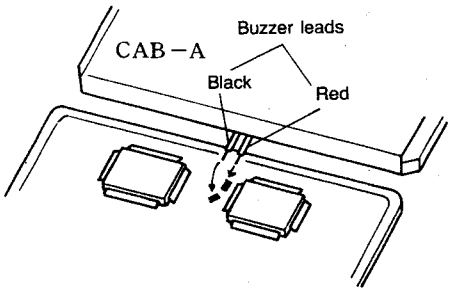
NOTE: Do not insert the memory PWB onto the CAB-D guide pin yet.

⑥ Insert the mask sheet and fixing rubber (Fig.3) and fold back a part of the FPC and insert it onto the CAB-B guide pin.
⑦ Match the angle to the CAB-B guide pin and fasten it with four screws.

NOTE: Tighten two screws in the center first, then two more adjacent to it.

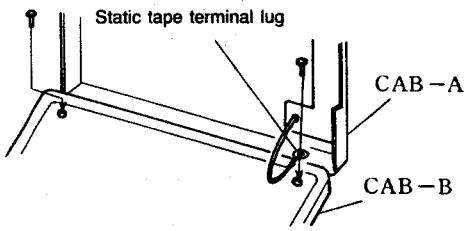


(Fig.3)

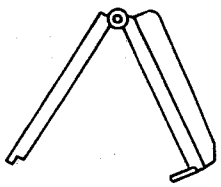


(Fig.4)

⑧ Bring the display side bottom cabinet (CAB-A). Solder the buzzer leads first (Fig.4) and fasten the terminal lug of the static tape using two tapping screw.
⑨ Mate CAB-A with CAB-B.
⑩ Close the unit halfway and mount the lower half of the key sheet and the memory PWB on CAB-D.
⑪ Mate CAB-C.



(Fig.5)



(Fig.6)

8-5. Replacement of the static tape

The static tape must be replaced with a new one once after it has been removed from the aluminum panel. Wipe away residual glue after bonding. Check ground continuity after the installation, in reference to 8-6.

8-6. Ground continuity check

Make sure that the resistance between the display side cosmetic panel and the RAM card lid is not more than 5Ω.

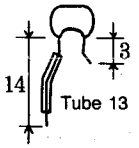
8-7. Internal RAM capacity and auto-power off functional checks

The contents of the memory will be erased after the following is conducted.

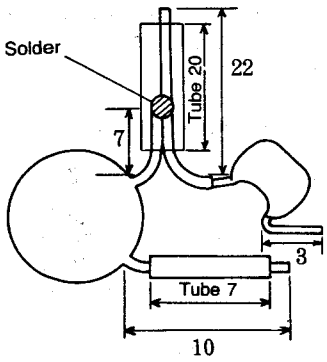
① Depress the ALL RESET switch.
The following will be displayed.
MEM$="2"
MEMORY ALL CLEAR OK?
② Push the [Y] key.
③ Type [M] and [ENTER]. "6558" will come displayed.
④ Leave it in the above state for more than 14 minutes, then make sure that power has been turned off.
⑤ Push the [ON] key to bring the display message in ③ above.

8-8. Precautions

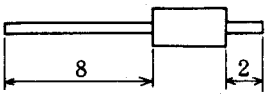
- All components must be closely attached to the PWB and soldered.
- When the LSI is replaced, use KR19RAM to solder with (see Service Information PS-009).
- The 0.1 μF ceramic capacitor (RC-KZ1054CCZZ) inserted across the KON pin of GA (pin 26) and the VGG side of the 0.033μF must be handled in the following manner:



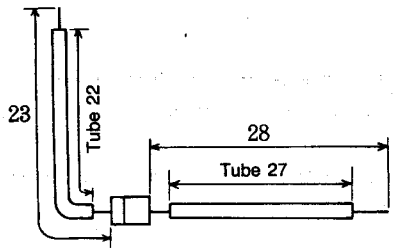
- The capacitor must be inserted to the 11-pin connector in the following manner:



- The resistor (100kΩ) must be inserted in the following manner:



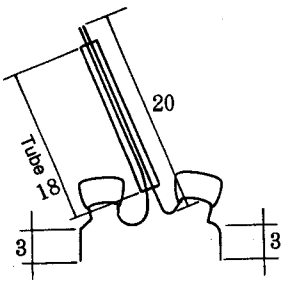
- The diode must be inserted in the following manner:



- See the table below for the size of jumper wire.

	Size
J1	140
J2	40
J3	105

- The capacitor (RC-K1E104HCZZ) × 2 pieces must be inserted in the following manner:



8-9. Display side cabinet and keyboard side cabinet

The above two cabinets are mated together with the spring pin in use. To replace one of the cabinets, it is possible to remove the spring pin by scraping off the cabinet body using such as wire cutter, but the spring pin once removed may not be used again.

9. Check-Out with the Test Program

A test program is contained in the ROM.

- **Check item**

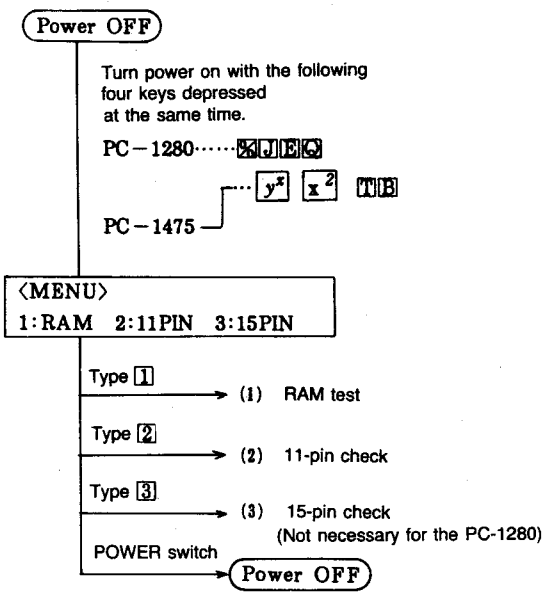
(1) RAM card read after write test
(2) 11-pin connector I/O line tests
(3) 15-pin connector I/O line tests
NOTE: The above item (3) is not used by the PC-1280.

- **Tools required**

The PC-1360 special tool UKOGC3020CSZZ (price rank: BC) is used for (2) and (3).

- **Description**

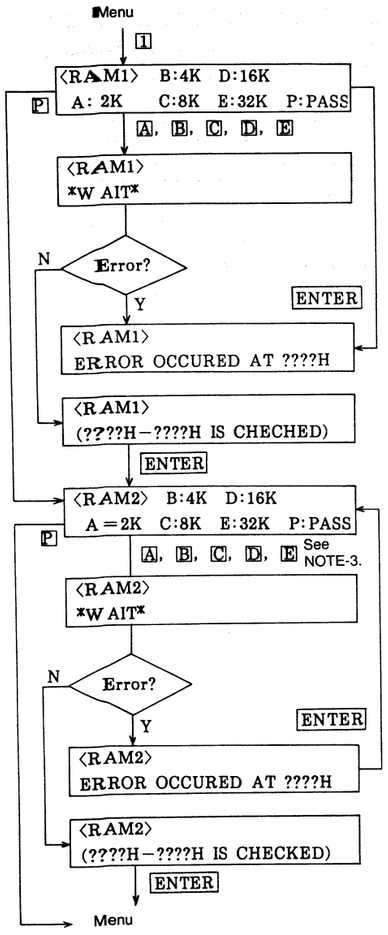
The RAM contents must be saved on such as tape before conducting the above test item (1), because the program and data are destroyed during the test.


Power OFF
Turn power on with the following four keys depressed at the same time.
PC-1280 ····· %JEQ
PC-1475 ····· y^x x^2 TAB
〈MENU〉
1:RAM 2:11PIN 3:15PIN
Type 1 → (1) RAM test
Type 2 → (2) 11-pin check
Type 3 → (3) 15-pin check
(Not necessary for the PC-1280)
POWER switch → Power OFF

NOTE-1: Power can be turned off while the above message is on display.
NOTE-2: If the test program fails to start, check keys first.

• Details of check items

(1) RAM test



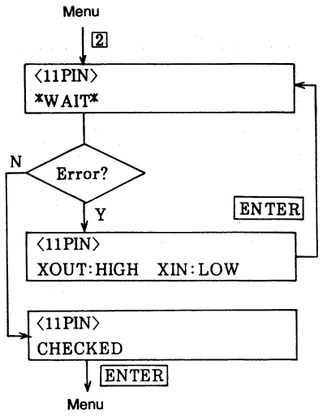
NOTE-3: The RAM corresponds to the slot in the following way.

	PC1280	PC1475
RAM1	SLOT	SLOT1
RAM2	8KB internal RAM	SLOT2

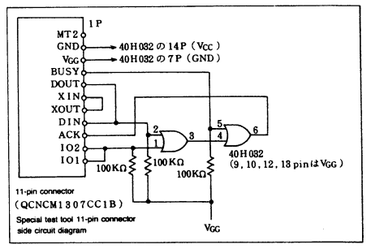
NOTE-4: The contents of the RAM are destroyed during the test. To preserve the RAM contents, type the [P] key to pass the test.

(2) 11-pin test

Set the 11-pin connector of the test tool with the 11-pin connector of the unit with the parts side facing up.



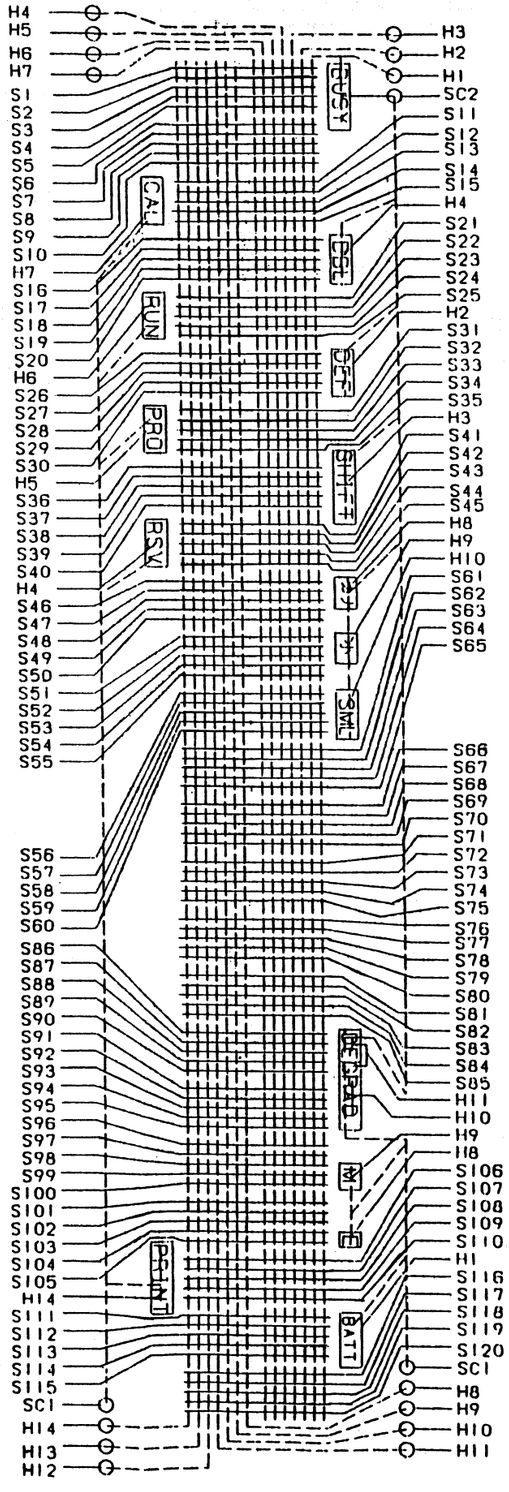
NOTE-1: See the following for the sequence of the test vs. the test pin.



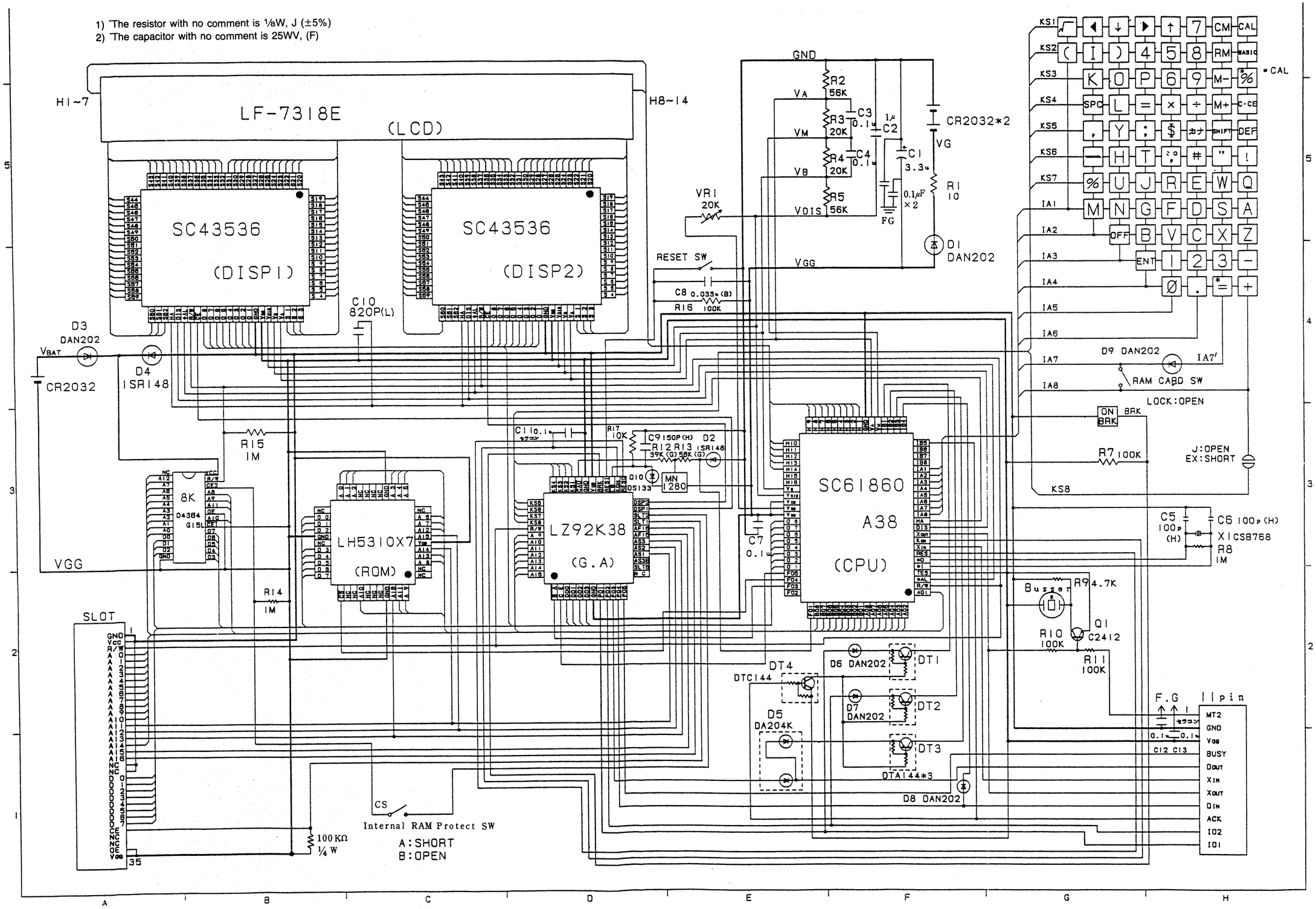
① XOUT→XIN
② IO1→IO2
③ IO2→IO1
④ DOUT→DIN
⑤ DIN→DOUT
⑥ BUSY→ACK

NOTE-2: Error will not be caused, if signal lines were to short within the unit.

10. LCD Matrix Circuit

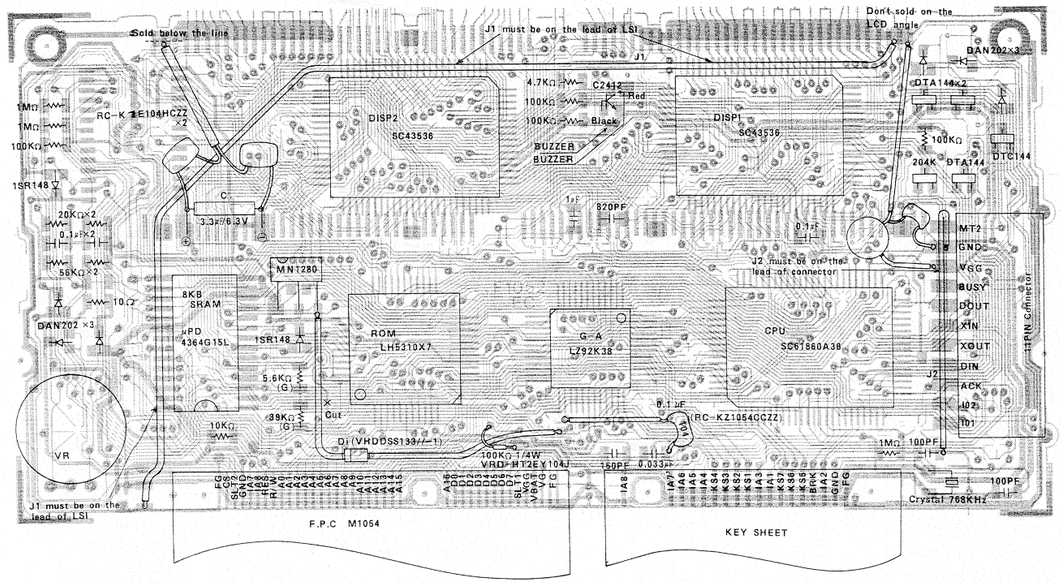


11. Circuit Diagram

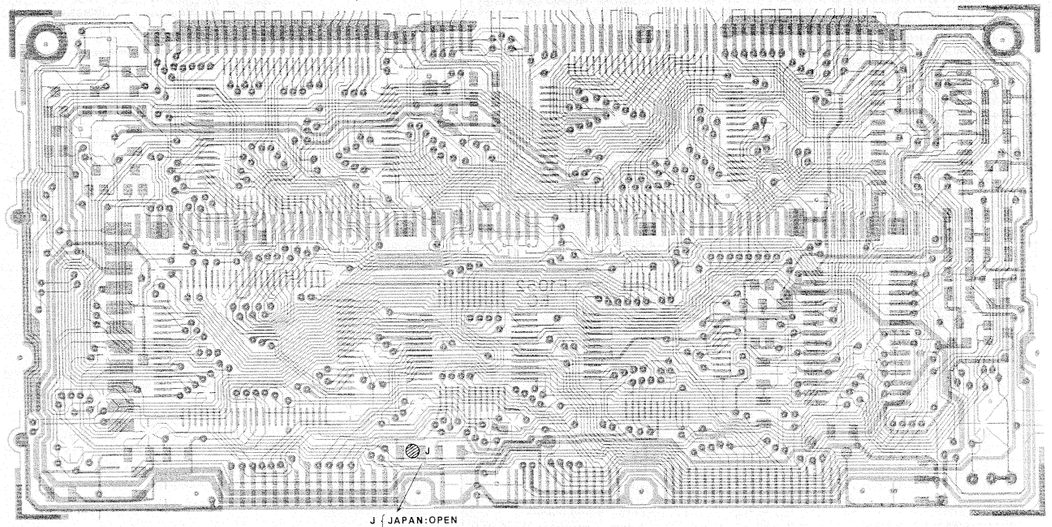


12. Parts & Signal Description

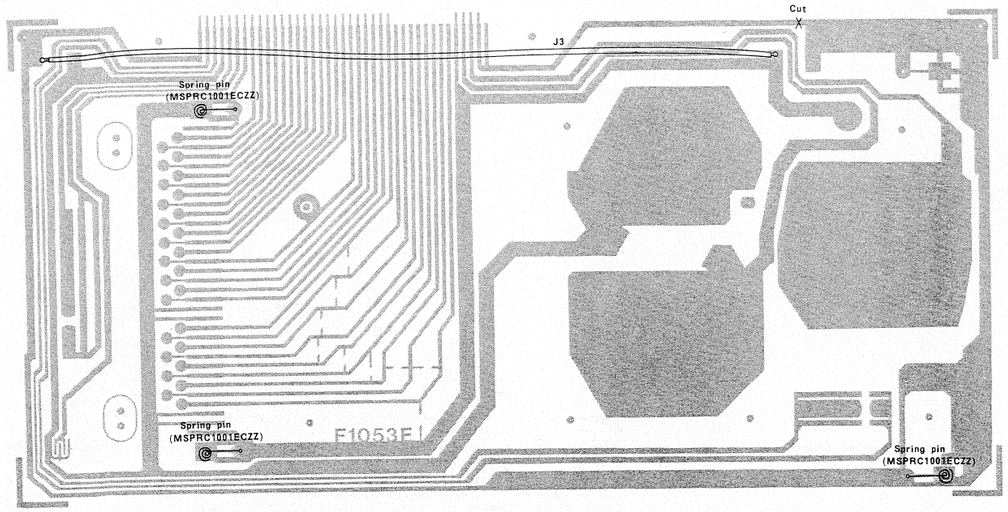
Main PWB bottom side



Main PWB upper side



Memory PWB bottom side



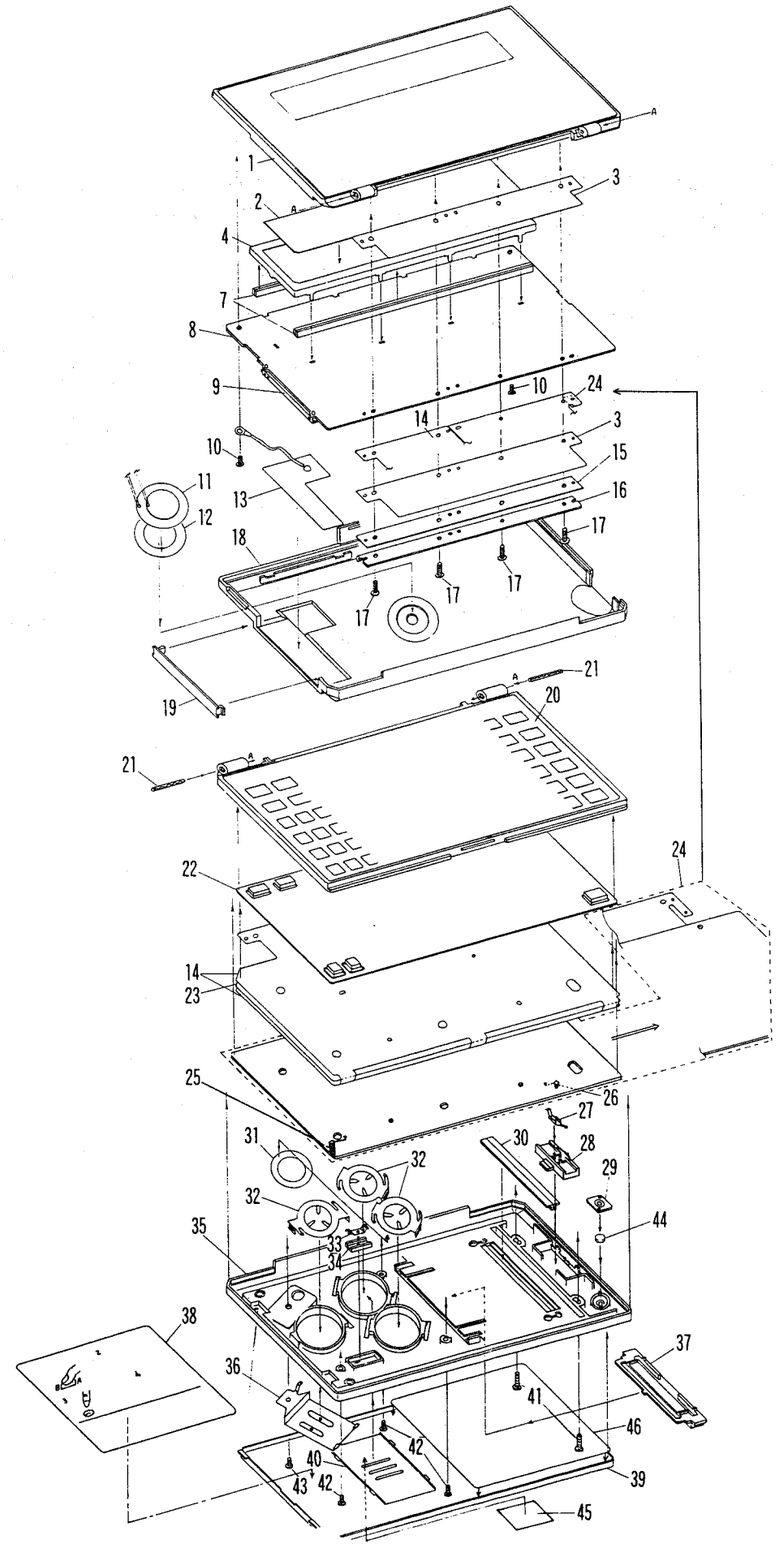
Memory PWB upper side

No foil pattern

13. PARTS LIST & GUIDE

1 Exteriors(外装)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION
1	DUNTG1226ECZZ		EM	N	D	Display cabinet unit (Top) (Japan) ヒョウジキャビネット ユニット
	DUNTG1229ECZZ	AP		N	D	Display cabinet unit (Top) (except Japan) ヒョウジキャビネット ユニット
2	PFiLW1009ECZZ	AD	DF	N	C	Polarized filter ヘンコウフィルター
3	PSHEZ1019ECZZ	AB	DC	N	C	Mask sheet カクシシート
4	DUNTK1227ECZZ	EV	FM	N	B	LCD unit LCDユニット
7	PGUMS1017ECZZ	AB	DC	N	C	Rubber connector ゴムコネクタ
8	CPWBF1052ECO1	BS	NF	N	E	Main PWB unit (Include No.9) メインキバン ユニット
9	QCNCW1306CC1B	AK	DY		C	Connector (12pin) コネクター
10	LX-BZ1155CCZZ	AA	DA		C	Screw (2×8) ビス
11	RALMB1030CCZZ	AD	DF		B	Buzzer ブザー
12	PTPEH1213CCZZ	AB	DB		C	Tape ハツオンタイ コテイテープ
13	PTPEH1026ECZZ	AE	DJ	N	C	static tape セイデンテープ
14	DUNT-1230ECZZ	AK	DY	N	B	Key sheet キーシート
15	PGUMM1015ECZZ	AB	DC	N	C	Fixing rubber アッチャクゴム
16	LANGT1011ECZZ	AC	DE	N	C	Fixing angle アッチャクアングル
17	LX-BZ1200CCZZ	AA	DA		C	Screw ビス
18	DUNTG1268ECZZ	AP	EM	N	D	Display cabinet unit (Bottom) ヒョウジキャビネット ユニット
19	GFTAS1282CC01	AB	DB		D	Connector cover コネクター フタ
20	DUNTG1225ECZZ		EM	N	D	Key cabinet unit (Top) (Japan) キーキャビネット ユニット
	DUNTG1228ECZZ	AP		N	D	Key cabinet unit (Top) (except Japan) キーキャビネット ユニット
21	LPiNS1002ECZZ	AA	DA	N	C	Spring pin スプリングピン
22	PGUMM1013ECZZ		EC	N	B	Key rubber (Japan) ゴムキー
	PGUMM1013ECSA	AL		N	C	Key rubber (except Japan) ゴムキー
23	PZETL1024ECZZ	AA	DA	N	C	Key spacer キースペーサ
24	CPWBF1053ECO1	AX	FU	N	E	Memory PWB unit メモリーキバン ユニット
25	MSPRC1011ECZZ	AA	DA	N	C	Earth spring セイデン スプリング
26	MSPRC1001ECZZ	AB	DB		C	PS spring for RAM card RAMカードヨウ PSスプリング
27	QCNTM1042CCZZ	AA	DA		C	Slide switch terminal スライドスイッチヨウ セッテン
28	MSLiP1003ECZZ	AB	DC	N	C	Slide switch knob スライドスイッチ ツマミ
29	PGUMM1594CCZZ	AB	DB		C	Reset spring rubber リセットスプリングゴム
30	PGUMS1608CCZZ	AE	DJ		C	Rubber connector for RAM card RAMカードヨウ ゴムコネクター
31	PZETL1564CCZZ	AB	DC		C	Insulator sheet ゼツエンシート
32	QTANZ1503CCZZ	AB	DB		C	Battery terminal A バッテリータンシ A
33	QCNTM1056CC01	AA	DA		C	Contact for slide switch スライドスイッチヨウ セッテン
34	JKNBZ1747CCZZ	AA	DB		C	PS switch knob PSスイッチ ツマミ
35	GCABA1030ECZZ	AE	DK	N	D	Key cabinet unit (Bottom) キーキャビネット ユニット
36	QTANZ1504CCZZ	AB	DB		C	Battery terminal B バッテリータンシ B
37	LFiX-1190CCSC	AB	DC	N	C	Card stopper カードストッパー
38	TLABH1127ECZZ		DA	N	C	Battery caution label (Japan) デンチチュウイ ラベル
	TLABH1143ECZZ	AA		N	C	Battery caution label (except Japan) デンチチュウイ ラベル
39	GFTAU1012ECZZ	AE	DM	N	D	Lid for card カードブタ
40	QTANZ1406CCZZ	AB	DC		C	Battery terminal (⊕⊖) バッテリータンシ
41	LX-BZ1018ECZZ	AA	DA		C	Screw ビス
42	LX-BZ1147CCZZ	AA	DA		C	Screw (2×4.5) ビス
43	LX-BZ1116CCN1	AA	DA		C	Screw ビス
44	PSPAP1001ECZZ	AA	DA		C	Reset spacer リセットスペーサー
45	TLABH1160ECZZ		DA	N	C	Caution label(Battery replacement) (Japan) デンチコウカン チュウイラベル
	TLABH1161ECZZ	AA		N	C	Caution label(Battery replacement) (except Japan) デンチコウカン チュウイラベル
46	PZETL1029ECZZ	AB	DB	N	C	Insulator sheet マイラーシート
101	TLABZ1008ECZZ	AA	DA		C	Caution label チュウイラベル
102	TLABS1078ECZZ		DA		D	VCCI label 3 (Japan) VCCIラベル 3
103	TLABH1956CCZZ	AB	DB		C	Protector label ユソウジ ホゴ ラベル



2 Main PWB unit(メイン基板ユニット)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
1	QCNCW1306CC1B	AK	DY		C	Connector (11pin)	コネクター
2	RC-CZD105ECZZ	AC	DD		C	Capacitor (1μF)	コンデンサー
3	RC-CZ1047CCZZ	AB	DB		C	Capacitor (0.033μF)	コンデンサー
4	RC-EZ335BEC0J	AB	DC		C	Capacitor (6.3WV 3.3μF)	コンデンサー
5	RC-KZ1054CCZZ	AB	DC		C	Capacitor (50WV 0.1μF)	コンデンサー
6	RC-ZZ1006CCZZ	AB	DB		C	Capacitor (0.1μF)	コンデンサー
7	RCRSZ1063CCZZ	AF	DM		B	Crystal (768KHz)	クリスタル
8	RH-DZ1001ECN1	AD	DF		B	Diode (1SR148)	ダイオード
9	RVR-Z2400QCZZ	AF	DN		B	Variable resistor (20KΩ)	ボリウム
10	VCCCTP1HH101J	AA	DA		C	Capacitor (50WV 100PF)	コンデンサー
11	VCCCTP1HH151J	AA	DA	N	C	Capacitor (50WV 150PF)	コンデンサー
12	VCKYTP1EF104Z	AA	DA		C	Capacitor (25WV 0.10μF)	コンデンサー
13	VCKYTP1HB821K	AA	DA	N	C	Capacitor (50WV 820PF)	コンデンサー
14	VHDDAN202K/-1	AB	DB		B	Diode (DAN202K)	ダイオード
15	VHDDA204K//-1	AC	DC		B	Diode (DA204K)	ダイオード
16	VHDDSS133//-1	AA	DA		B	Diode (DSS133)	ダイオード
17	VHiD4364G15LN	BD	GU		B	IC (D4364G15LN)	IC
18	VHiLH5310X7-1	AW	FR		B	IC (LH5310X7)	IC
19	VHiLZ92K38/-1	AN	EK		B	IC (LZ92K38)	IC
20	VHiMN1280Q/-1	AE	DH		B	IC (MN1280Q)	IC
21	VHiSC43536/-1	AX	FU		B	IC (SC43536)	IC
22	VHiSC61860A38	AX	FU		B	IC (SC61860A38)	IC
23	VRS-TP2BD100J	AA	DA		C	Resistor (1/8W 10Ω ±5%)	テイコウ
24	VRS-TP2BD103J	AA	DA		C	Resistor (1/8W 10KΩ ±5%)	テイコウ
25	VRS-TP2BD104J	AA	DA		C	Resistor (1/8W 100KΩ ±5%)	テイコウ
26	VRS-TP2BD105J	AA	DA		C	Resistor (1/8W 1.0MΩ ±5%)	テイコウ
27	VRS-TP2BD203J	AA	DA		C	Resistor (1/8W 20KΩ ±5%)	テイコウ
28	VRS-TP2BD393G	AA	DA		C	Resistor (1/8W 39KΩ ±2%)	テイコウ
29	VRS-TP2BD472J	AA	DA		C	Resistor (1/8W 4.7KΩ ±5%)	テイコウ
30	VRS-TP2BD562G	AA	DA		C	Resistor (1/8W 5.6KΩ ±2%)	テイコウ
31	VRS-TP2BD563J	AA	DA		C	Resistor (1/8W 56KΩ ±5%)	テイコウ
32	VSDTA144EK/-1	AC	DC		B	Transistor (DTA144EK)	トランジスター
33	VSDTC144EK/-1	AC	DC		B	Transistor (DTC144EK)	トランジスター
34	VS2SC2412K/-1	AB	DB		B	Transistor (SC2412K)	トランジスター
35	RC-K1E104HCZZ	AB	DC		C	Capacitor (25WV 0.1μF)	コンデンサー
36	VRD-HT2EY104J	AA	DA		C	Resistor (1/4W 100KΩ ±5%)	テイコウ
	ユニット (Unit)						
901	CPWBF1052EC01	BS	NF	N	E	Main PWB unit	メインキバン ユニット

3 Packing material & Accessories(梱包と付属品)

NO.	PARTS CODE	PRICE RANK Ex	PRICE RANK Ja	NEW MARK	PART RANK	DESCRIPTION	
1	LPLTP1007ECZZ	AC	DD	N	D	Template	テンプレート
2	TiNSJ1118ECZZ		FX	N	D	Instruction book (Japan)	トリアツカイセツメイショ
	TiNSE1122ECZZ	AX		N	D	Instruction book (except Japan,Germany)	トリアツカイセツメイショ
	TiNSG1123ECZZ	AX		N	D	Instruction book (Germany)	トリアツカイセツメイショ
3	SPAKC0276ECZZ		DN	N	D	Packing case (Japan)	パッキングケース
	SPAKC0279ECZZ	AF		N	D	Packing case (except Japan)	パッキングケース
4	TLSTS1015CCZZ		DA		D	Service list (Japan)	サービスリスト
5	SPAKA0278ECZZ	AD	DF	N	D	Packing cushion for set	セットヨウ パッキングクッション
6	PHOG-1001ECZZ	AA	DA	N	D	Protector sheet	ユソウジホゴケース